

Patent claims

1. An extension piece (2) for a dental implant (1) with a head part (20) which serves as a basis for a retention element (7), and with a threaded stem (29) with which the extension piece (2) can be screwed into the dental implant (1), wherein the extension piece (2) has at least one reference form, in particular a reference surface (27b, 24), which defines the circumferential position of the extension piece (2) and via which the circumferential position of the extension piece (2) can be transferred to a working model (M).
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2. The extension piece (2) as claimed in claim 1, wherein the extension piece (2) has a mating shoulder (25) via which the extension piece (2) can be supported on an implant shoulder (10) of the implant (1), by which means the position of the extension piece in the axial direction can be transferred.
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3. The extension piece (2) as claimed in claim 1 or 2, wherein the extension piece (2) has a first contour (22) onto which a transfer aid (4) with a complementarily shaped second contour (45) can be clamped and/or snapped.
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4. The extension piece as claimed in one of claims 1 through 3, wherein the head part (20) is of substantially cylindrical design, and wherein the reference surface (24) is formed by a cut surface of a semicircular cylinder (23) extending parallel to the screw axis (A) of the extension piece (2).
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5. The extension piece as claimed in one of claims 1 through 4, wherein the extension piece (2) has a non-cylindrical outer contour with screw-in
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surfaces (21) via which the extension piece (2) can be screwed into an implant (1) with a tool (3) engaging on them.

5 6. The extension piece as claimed in claim 4 or 5, wherein a bevel (27a) is provided in the area of the transition from the reference surface (24) to the outer surface (27b) of the semicircular cylinder (23).

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7. The extension piece as claimed in one of claims 1 through 6, wherein the extension piece is made of a metallic, non-oxidizing, high-melting-point alloy, in particular of a composition of 60% Au, 19% Pt, 20% Pd, 1% Ir, the melting range being between 1400° and 1490° Celsius.

20 8. A transfer aid (4) for transferring the position of an implant (1) and of an extension piece (2), in particular as claimed in one of claims 1 through 7, to a working model (M), with a transfer surface (42) which defines the circumferential position of the transfer aid (4), the transfer surface (42) being shaped to complement a reference form (27b, 24) on the extension piece (2), wherein the transfer aid (4) has a base plate (40) in which the transfer surface (42) is arranged, the transfer aid (4) being able to be secured on the extension piece (2) by clamping and/or snap-fit means (45), and the base plate (40) having a form which can be anchored securely against rotation in an impression (93), in particular a non-cylindrical outer contour.

35 9. The transfer aid as claimed in claim 8, wherein the transfer surface (42) is part of a semicylindrical opening (41) in the base plate (40).

10. The transfer aid as claimed in claim 9, wherein a recess (46) is arranged in the transition area between the transfer surface (42) and the semicylindrical inner surface (47).
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11. The transfer aid as claimed in one of claims 8 through 10, wherein the clamping and/or snap-fit means are formed by a circular lip (44) which is arranged on the base plate (40) and which has a second contour (45) via which the transfer aid (4) can be snapped and/or clamped onto a first contour (22) of the extension element (2).
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12. The transfer aid (4) as claimed in one of claims 8 through 11, wherein the transfer aid (4) is in one piece, preferably made of a plastic material.
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13. The transfer aid as claimed in one of claims 8 through 12, wherein the opening (41) extends right through the base plate (40).
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14. The transfer aid as claimed in one of claims 8 through 13, wherein the base plate (40) is provided with holes (43).
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15. The use of an extension piece (2) which can be machined, in particular ground, for a dental implant (1), in particular as claimed in one of claims 1 through 7, as a transfer part for transferring its own axial and circumferential position, and as a basis for a retention element (7).
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16. A combination of a transfer aid (4) as claimed in one of claims 8 through 14 and of an extension piece (2) as claimed in one of claims 1 through 8, and preferably of a dental implant (1), where the transfer surface (42) on the transfer aid (4) is designed complementing the reference surface (24)
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of the extension piece (2).

17. A method for taking an impression of the radial and axial position of at least one dental implant
5 (1) implanted in a jaw bone (K) with an extension piece (2) fitted in it to a working model (M) and/or for producing a basis for a retention element (7), said method comprising the following steps:
 - 10 a) screwing the at least one extension piece (2) with a reference surface (24) as basis for a retention element (7) into the implant or implants (1) with a predetermined first torque,
 - 15 b) producing an impression (93) of the situation of the implant (1) and of the extension piece (2) in the patient's mouth by applying an impression compound (90), the extension piece (2) leaving an impression in the impression compound and remaining connected to the implant (1) after removal of the impression compound (90) from the mouth,
 - 20 c) removing the extension piece (2) from the implant,
 - 25 d) repositioning the extension piece (2) in the correct position in the impression (93),
 - e) before or after step d), screwing the extension piece or extension pieces (2) repositioned in the impression (93) into a manipulation implant (5) with a second torque,
 - 30 f) producing a working model (M) by casting the manipulation implant or implants (5) into a modeling compound (M4).
18. The method as claimed in claim 17, wherein a transfer aid (4) is applied to the extension piece (2), in particular by clamping and/or screwing, before the removal of the impression (93) of the extension piece (2), and wherein the transfer aid (4) remains in the impression compound (90) when
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the impression (93) is produced.

19. The method as claimed in claim 17 or 18, wherein
5 the first predetermined torque is greater than the second torque, wherein in particular the first torque is approximately 35 Ncm, and wherein the second torque approximately corresponds to a manual screwing of the extension piece (2) onto the manipulation implant (5).
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20. The method as claimed in one of claims 17 through 19, wherein, in step a), the extension piece (2) is turned twice in succession into the implant (1).
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21. The method as claimed in one of claims 17 through 20, wherein the extension piece (2) is machined, in particular ground, after the impression has been taken.
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22. The method as claimed in claim 21, wherein a position marking (L) is arranged on the extension piece (2) before the machining, and wherein the extension piece (2), for machining, is removed
25 from the working model (M) and in particular fitted onto a holder (6) and machined on the latter.
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23. The method as claimed in one of claims 17 through 22, wherein a retention element (7) for mounting a detachable tooth replacement is applied to the machined extension piece (2) on a plateau surface (28).
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24. The method as claimed in claim 23, wherein the machined extension piece (2) is screwed into the implant (1) with the first predetermined torque.
25. The method as claimed in claim 23 or 24, wherein,

upon definitive screwing of the machined extension piece (2) into the implant (1), a spreading cone (8) is inserted between an inner cone (12) of the implant (1) and the extension piece (2).